

Mithi Alexa C. de los Reyes

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<https://github.com/mdlreyes>

Employment	<i>Assistant Professor of Astronomy</i>	will start July 2023
	Department of Physics and Astronomy, Amherst College, Amherst, MA	
	<i>Postdoctoral Researcher</i>	Aug. 2022 - present
	Kavli Institute of Particle Astrophysics and Cosmology, Palo Alto, CA	
Education	<i>California Institute of Technology, Pasadena, CA</i>	Sept. 2017 - June 2022
	PhD in Astrophysics (June 2022)	
	Advisor: Evan Kirby	
	Thesis: <i>Global and Resolved Chemical Evolution of Nearby Dwarf Galaxies</i>	
	MS in Astrophysics (June 2019)	
	<i>Institute of Astronomy, University of Cambridge, UK</i>	Oct. 2016 - Jul. 2017
	MPhil in Astronomy (August 2017)	
	Advisor: Rob Kennicutt	
	Thesis: <i>The Integrated Star Formation Law in Nearby Galaxies</i>	
	<i>North Carolina State University, Raleigh, NC</i>	Aug. 2012 - May 2016
	BS Physics (summa cum laude), BS Mathematics (summa cum laude)	
Awards and Honors	Stanford Science Fellowship	2022
	Caltech Three Minute Thesis, First Prize and People's Choice winner	2021
	Ford Foundation Dissertation Fellowship, Honorable Mention	2021
	NSF Graduate Research Fellowship	2016
	Winston Churchill Scholarship	2016
	Astronaut Scholarship	2014 & 2015
	Barry M. Goldwater Scholarship	2014
	Park Scholarship (full-tuition merit scholarship to NCSU)	2012
Research Publications	de los Reyes, M.A. , Kirby, E.N., Ji, A.P., Nuñez, E.H. "Simultaneous Constraints on the Star Formation History and Nucleosynthesis of Sculptor dSph." <i>The Astrophysical Journal</i> 925.66 (2022). doi:10.3847/1538-4357/ac332b	
	Zhuang, Z., Kirby, E.N., Leethochawalit, N., & de los Reyes, M.A. "NGC 147 Corroborates the Break in the Stellar Mass-Stellar Metallicity Relation for Galaxies." <i>The Astrophysical Journal</i> 920.63 (2021). doi:10.3847/1538-4357/ac1340	
	Kennicutt, R.C. & de los Reyes, M.A. "Revisiting the Integrated Star Formation Law. Paper II: Starbursts and the Combined Global Schmidt Law." <i>The Astrophysical Journal</i> 908.61 (2021). doi:10.3847/1538-4357/abd3a2	
	Shin, K., et al. (including de los Reyes, M.A.) "Metal Abundances across Cosmic Time (MACT) Survey. III. The Relationship between Stellar Mass and Star Formation Rate in Extremely Low-Mass Galaxies." <i>Monthly Notices of the Royal Astronomical Society</i> 502.2 (2021). doi:10.1093/mnras/staa3307	

	de los Reyes, M.A. , Kirby, E.N., Seitzenzahl, I.R., Shen, K.J. “Manganese Indicates a Transition from Sub- to Near-Chandrasekhar Type Ia Supernovae in Dwarf Galaxies.” <i>The Astrophysical Journal</i> 891.85 (2020). doi:10.3847/1538-4357/ab736f	
	Kirby, E.N., et al. (including de los Reyes, M.A.) “Evidence for Sub-Chandrasekhar Type Ia Supernovae from Stellar Abundances in Dwarf Galaxies.” <i>The Astrophysical Journal</i> 881.45 (2019). doi:10.3847/1538-4357/ab2c02	
	de los Reyes, M.A. & Kennicutt, R.C. “Revisiting the Integrated Star Formation Law. Paper I: Non-Starbursting Galaxies.” <i>The Astrophysical Journal</i> 872.16 (2019). doi:10.3847/1538-4357/aafa82	
	Kneller, J.P. & de los Reyes, M.A. “The Effect of Core-Collapse Supernova Accretion Phase Turbulence on Neutrino Flavor Evolution.” <i>Journal of Physics G: Nuclear and Particle Physics</i> 44.8 (2017). doi:10.1088/1361-6471/aa7bc8	
	Ly, C., et al. (including de los Reyes, M.A.) “The Metal Abundance Across Cosmic Time (MACT) Survey I: Optical Spectroscopy in the Subaru Deep Field.” <i>The Astrophysical Journal Supplement Series</i> 226.5 (2016). doi:10.3847/0067-0049/226/1/5	
	de los Reyes, M.A. , Ly, C., Lee, J.C., et al. “The Relationship Between Stellar Mass, Gas Metallicity, and Star Formation Rate for H α -selected Galaxies at $z \approx 0.8$ from the NewH α survey.” <i>The Astronomical Journal</i> 149.79 (2015). doi:10.1088/0004-6256/149/2/79	
Additional Publications	Kahanamoku, S., et al. (including de los Reyes, M.A.) “A Native Hawaiian-led summary of the current impact of constructing the Thirty Meter Telescope on Maunakea.” Astro2020 white paper (2020). arXiv:2001.00970	
	Khullar, G., et al. (including de los Reyes, M.A.) “Astrobites as a Community-led Model for Education, Science Communication, and Accessibility in Astrophysics.” Astro2020 white paper (2019). arXiv:1907.09496	
Successful Observing Proposals	“Nucleosynthesis in Degenerate Objects” Kirby, E.N., de los Reyes, M.A. , Duggan, G.E. Keck II: DEIMOS (7 nights)	2018A, 2018B, 2019A, 2020A, 2021A
	“Chemical Abundances of Nyx Stars” Necib, L., Ji, A., Strom, A.E., de los Reyes, M.A. Keck I: HIRES (4 nights)	2020A
	“Spatially Resolved Metallicities in Void Dwarf Galaxies” Kirby, E.N., de los Reyes, M.A. , Steidel, C.S. Keck II: KCWI (3 nights)	2019B
Invited Research Presentations	<i>Physics Colloquium</i> , Davidson College <i>AAS Journal Author Series</i> , American Astronomical Society (link) <i>Astronomy Seminar</i> , Departamento de Astronomia IAG-USP <i>Astro/Space Seminar</i> , University of Kansas <i>Physics & Astronomy Colloquium</i> , Pomona College <i>Theoretical Astrophysics Center Seminar</i> , UC Berkeley <i>Astro Lunch</i> , University of Pittsburgh/Carnegie Mellon University	Nov. 2022 July 2022 June 2022 Nov. 2021 Nov. 2021 Nov. 2021 Oct. 2021

	<i>Astronomy Seminar</i> , Michigan State University	Oct. 2021
	<i>Galaxy Hour</i> , Ohio State University	Oct. 2021
	<i>Science Happy Hour</i> , Northwestern University Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)	Oct. 2021
	<i>Lunch Talk</i> , Carnegie Observatories	Sept. 2021
	<i>CfA Seminar</i> , Center for Astrophysics Harvard & Smithsonian	Sept. 2021
	<i>Physics & Astronomy Colloquium</i> , Cal Poly Pomona	Oct. 2019
Contributed Research Presentations	<i>Keck Science Meeting</i> (UCSD)	Sept. 2021
	<i>235th AAS Meeting</i> (Honolulu, HI)	Jan. 2020
	<i>Keck Science Meeting</i> (UCLA)	Sept. 2019
	<i>233rd AAS Meeting</i> ; Chambliss Student Award Winner (Seattle, WA)	Jan. 2019
	<i>Stellar Archaeology as a Time Machine</i> (Kavli IPMU, Tokyo, Japan)	Dec. 2018
	<i>Laws of Star Formation</i> (Institute of Astronomy, Cambridge, UK)	July 2018
	<i>232nd AAS meeting</i> (Denver, CO)	June 2018
	<i>The Scales of Star Formation in Galaxies</i> (Sexten, Italy)	July 2017
	<i>223rd AAS meeting</i> (Washington, DC)	Jan. 2014
Invited Outreach Presentations	<i>San Diego Astronomy Association</i>	Oct. 2020
	<i>California Academy of Sciences Virtual NightLife series</i>	July 2020
	<i>Caltech Astronomy Stargazing and Lecture series</i>	May 2020
	<i>Astronomy on Tap: Los Angeles</i>	Jan. 2018
Teaching Experience	Teaching assistant	
	<ul style="list-style-type: none"> Assisted in multiple astronomy classes, with student evaluation scores: <ul style="list-style-type: none"> Ay123 (graduate-level Stars), Fall 2018-19: 4.89/5 Ay124 (graduate-level Galaxies), Winter 2018-19: 5/5 Ay126 (graduate-level Interstellar Medium), Spring 2018-19: 5/5 Ay101 (undergraduate-level Stars), Fall 2019-20: 5/5 Held office hours and exam review sessions, wrote problem set solutions, graded homework and exams Created a hands-on final project assignment to analyze planetary nebula spectra 	
	Guest lecturer	
	<ul style="list-style-type: none"> Planned and delivered guest lectures on: stellar nucleosynthesis, star formation, stellar feedback, and stellar spectra for graduate and undergraduate classes Wrote homework problems (including interactive Jupyter notebook problems) based on lecture material 	
	Additional training for teaching and mentorship	
	<ul style="list-style-type: none"> Took Caltech's E110 course (<i>Principles of University Teaching and Learning in STEM</i>) on pedagogical practices in science education Worked with the Caltech Center for Teaching, Learning, and Outreach (CTLO) to obtain feedback and reflect on guest lectures 	
Outreach and Professional Service	Astrobiters collaboration	Jan. 2017 - Aug. 2022
	<ul style="list-style-type: none"> <i>Admin committee co-chair</i> (Aug. 2020 - present): Help make steering decisions for the Astrobiters collaboration; currently leading the collaboration-wide development of a formal Code of Conduct 	

- *Diversity, equity, and inclusion committee co-chair* (Apr. 2018 - Aug. 2020): Spearheaded initiatives to promote equity & inclusion, including multiple series of Astrobites posts (#BlackInAstro, Astronomy and Indigenous Communities), and a collaboration-wide climate survey
- *Policy committee chair* (Apr. 2018 - Aug. 2019): Coordinated with AAS Bahcall Public Policy Fellow to schedule posts on public policy
- *Author* (Jan. 2017 - Jan. 2019): Wrote undergraduate-level summaries of astronomy papers for Astrobites website

Caltech Gender Minorities & Women in PMA

Apr. 2018 - present

- *Organizing committee member* (Aug. 2018 - June 2022): Plan and run events on campus relating to gender minorities & women in physics, math, and astronomy (PMA), including journal clubs and workshops
- *Acting president* (Feb. 2020 - Aug. 2020): Planned and ran biweekly committee meetings, oversaw quarterly events
- *FUTURE of Physics co-chair* (Aug. 2019 - Oct. 2019): Organized two-day fly-out program to bring talented undergraduate women to Caltech; recruited and coordinated graduate student volunteers; ran multiple panels and workshops

Caltech Astronomy outreach

Oct. 2017 - June 2022

- Help organize monthly Lecture and Stargazing Events
- Assist events by running a telescope or answering questions as part of a panel
- Participate in “guerrilla outreach” events, including Sidewalk Astronomy (set up telescopes in downtown Pasadena) and Science Train (ride the LA Metro and answer questions about astronomy)

Additional service

- Scientific referee for *Astronomy & Astrophysics*
- *Graduate representative* (June 2020 - June 2021): Led Astronomy department graduate student meetings; regularly checked in with students and served as spokesperson for graduate students in the department
- *Respect is a Part of Research organizer* (Jan. 2020 - June 2021): Help run annual peer-led training about preventing sexual violence and sexual harassment
- *#ShutDownSTEM organizer* (June 2020): Helped organize international academic strike in support of Black Lives; ran the Caltech #ShutDownSTEM strike day activities
- *Caltech for Black Lives co-chair of outreach* (Aug. 2020 - May 2021): Aggregated and shared opportunities for outreach around Caltech, guided by the requests from the Black Scientists and Engineers of Caltech in their June 2020 petition
- *PMA Student Advisory Board member* (Aug. 2019 - June 2021): Served as liaison between graduate students and Caltech Physics, Math, and Astronomy division
- *Toward a More Inclusive Astronomy consultant* (Jan. 2018 - June 2020): Advised department-wide journal club discussing equity and inclusion issues in astronomy